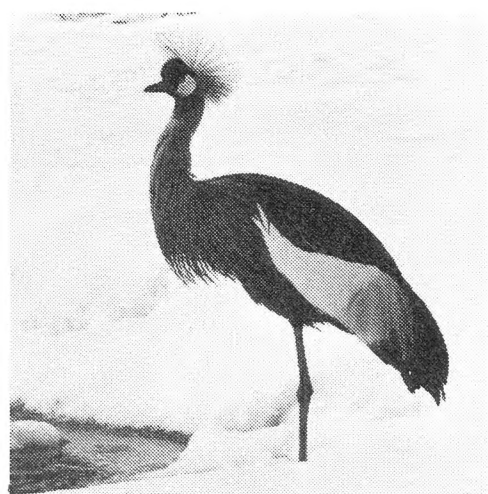




THE ZOO GOER

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FRONT COVER: The crowned crane is more used to African marshlands than to Washington snowstorms — but it adapts.

BACK COVER: The National Zoo's newest exhibit, Beaver Valley, will open this spring. What appear to be rock formations are actually clever fabrications of concrete.

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Animals Talk

Animals Talk

Dr. Eugene Morton
Research Ornithologist

What if you were asked to talk to an animal in its own language?

If you decided to take the task seriously, your first step might be to make a catalog of the sounds made by your chosen species. Then you would begin the tedious process of finding out how the animal uses its sounds. Ultimately, you would try the real test: You would make a noise and see if the animal responded the way you predicted it would. However, if you did not take the task quite so seriously, you might test out a bark or a growl or whine, depending on your mood, and consider your task done.

In fact, you have just discovered the basis of animal language—at least, some of it.

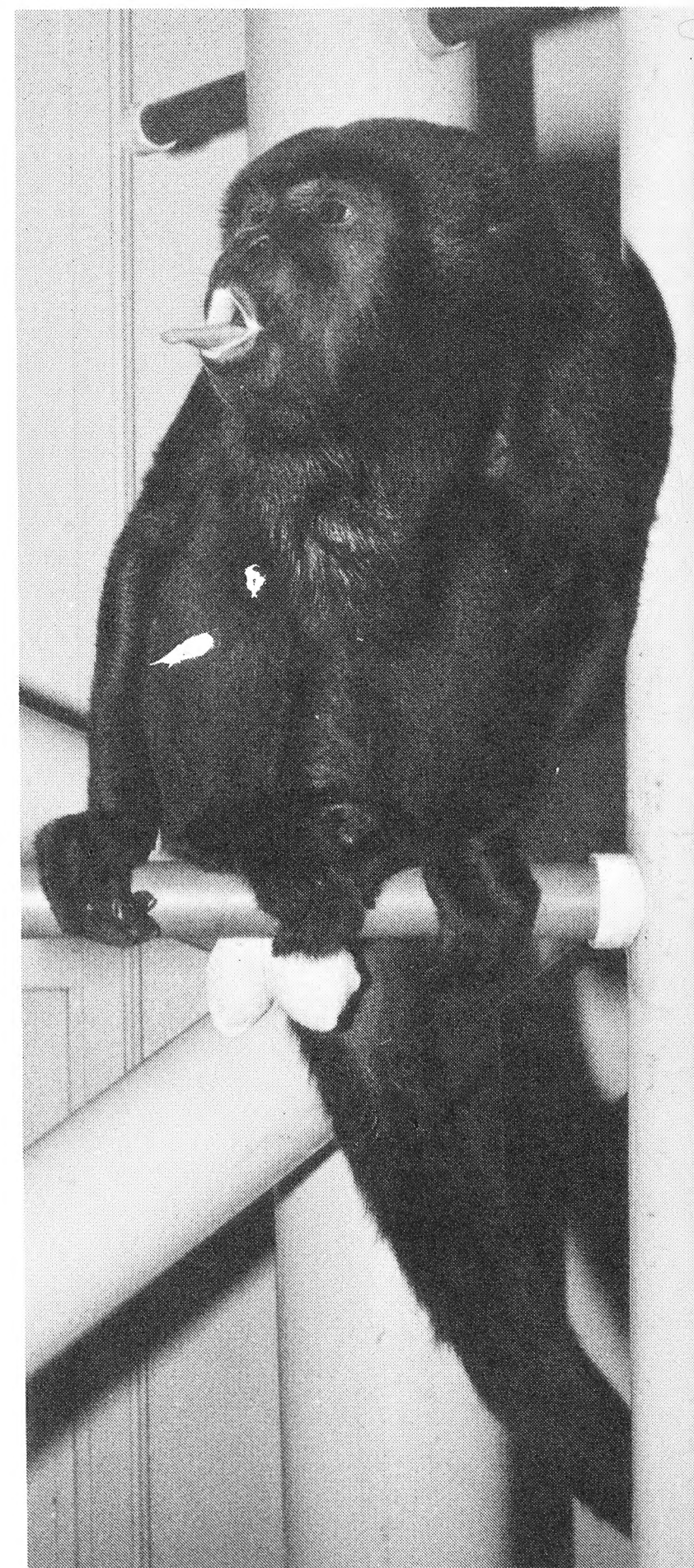
The growl, low and harsh; the whine, high-pitched and tonal; and the bark, abrupt, with the sound rising and falling, are the three basic vocal elements of animal language. (The word “tonal” is used in this article to refer to a pleasant, whistle-like sound that more closely

resembles a musical tone than does the harsh, dissonant sound of a growl or bark.) Unlike words, these three elements tell only how the animal feels inside; whether it is frightened, friendly, or submissive (whine), angry (growl), or sees something that interests it (bark). Animals do not say “things”; they say feelings—so in this sense, they do not “talk” at all.

Some animals need to “say” more kinds of feelings than others. Turkey vultures don’t say anything at all. Pelicans are mostly silent; when they do call, it is always angry—their only sound is a harsh, nasal growl. Zebra finches have a cheery song when they sing in courtship and a harsher song when they warn off rivals. The Carolina wren has an unusual repertoire of calls—when its calls are slowed down to half-speed on a tape recorder, they are indistinguishable from the barks, growls, and whines of a dog. And the wren uses its barks, growls, and whines as a dog does, depending on whether it sees something alarming, is attacking a rival, or is approaching its mate. The agouti (a tropical rodent about the size of a rabbit) growls when angry and calls *creak-creak* when it is friendly or making an appeal. Even the tiny pocket mouse gives a low, scratchy growl when it is angry and a whining squeal when it is frightened.

Of course, most of the sounds you hear from birds and mammals are not used in what humans would call conversation. Animals need to say “To whom it may concern: I am

PRECEDING PAGE: In breeding colonies pelican young bleat like sheep, bark, squeak, and grunt—but only among themselves. If a human being is present, they become as silent as their elders.



The piercing roar of the howler monkey gave rise to its name. The howls of the dominant males are so loud they have been heard as far as ten miles away.

here" much more than people do. They broadcast this message in ways sometimes pleasing to our ears, as with birdsong, and sometimes deafening, as with the raucous screech of the Argus pheasant or the peacock.

A term for sounds or calls which animals use over long distances is "long calls." Sometimes long calls contain the message "I am aggressive," as in the howler monkey's roar; but usually all they are meant to convey is "I am here," since this is enough both to attract a mate and to chase intruders out of their territory. In birds, the "I am here" calls are often tonal whistles if the bird lives in a forest, and trills and buzzy sounds if it lives in grassland or marshes. Each species has a distinctive "I am here" long call so that members of a species may identify each other easily over long distances.

In their "conversation," birds and mammals use a certain code—a code so ancient that even we humans still, though usually unknowingly, use a form of it. The code is tied to the physical structure of sounds. For example, a growl is low and harsh, like a big bass violin, while a whine is high and tonal, like a small violin. The evolutionary advantages of such communication are obvious. If an animal wants something and is prepared to fight for it, it uses a growl; often, then, it doesn't need to fight—the *sound* of

a big, threatening animal is enough, and the animal need not risk its life on the issue.

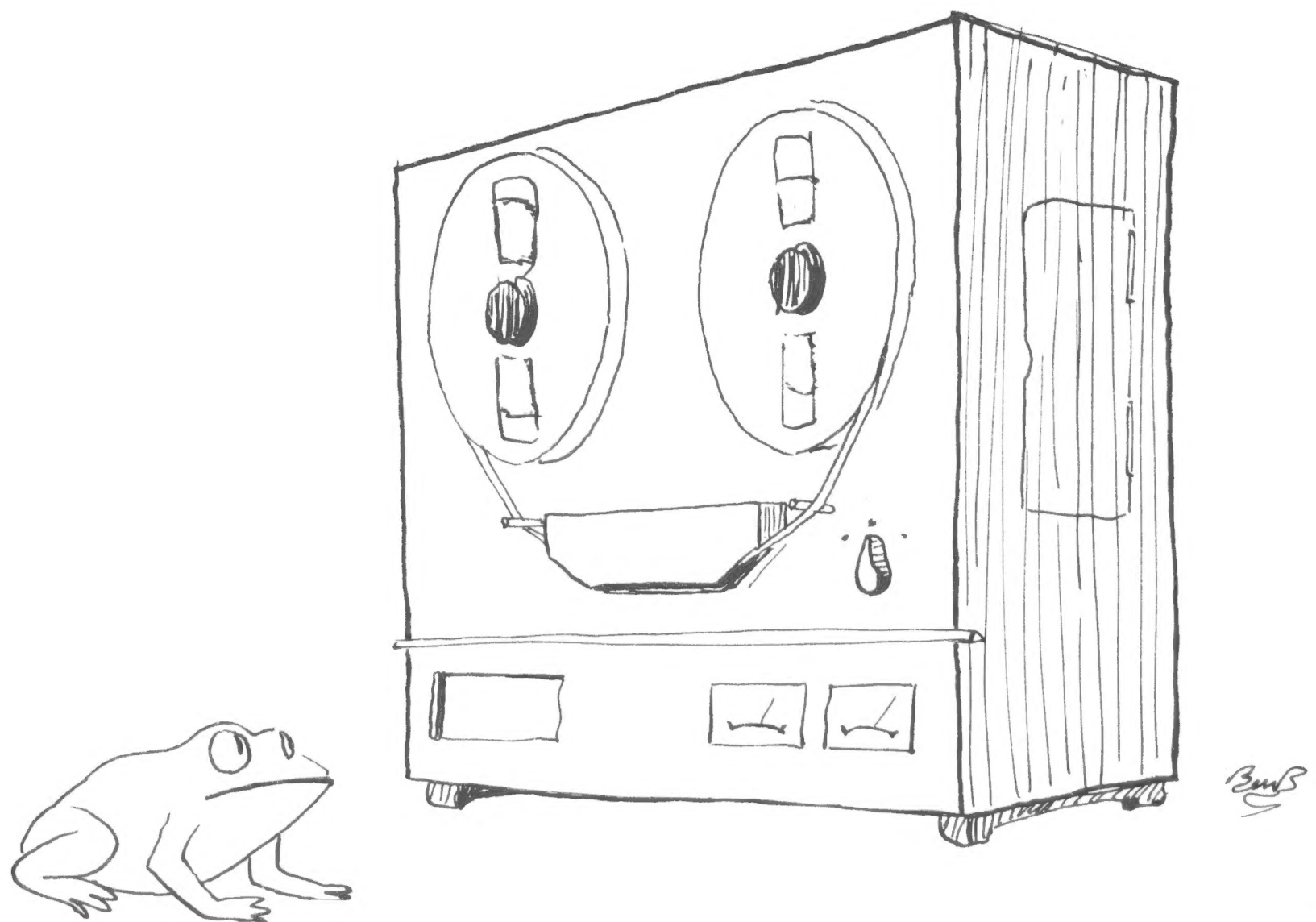
On the other hand, if one animal wants to get near to another, it may make a high, tonal sound—the sound of a small, meek individual.

Recently it was reported that the common toad male makes a threatening call if he is approached by a rival male while he is near an egg-laying female. British researchers found a direct relationship between each male's size and the deepness of its call. A small male would retreat from a tape recording of a larger male's call, but not from a recording of a smaller male's call. Thus, the researchers found, toads assess their ability to win a fight against other males based solely on deepness of voice.

Interestingly, animal mates some-

times use different sound elements during courtship. The courting sex, usually the male, consistently uses high-pitched sounds to say that the courter is friendly and wants to get close. Often, though, a female will utter harsh, low sounds in response, saying that she is aggressive and does not want to be approached. When the male persists in courting an angry female, and the female at last switches to high, tonal, "affectionate" sounds, it becomes

"Thus. . . toads assess their ability to win a fight against other males based on voice alone."





The baby bald eagle's cry is weak and high-pitched; and even when mature, this symbol of strength has a call more like a squeal than a scream.

evident that a pair-bond has been formed. In many bird species, such as chickadees, the female even reverts to "baby" behavior with her

favorite suitor, inducing him to feed her and otherwise indicate that he will be a good provider.

It is this animal legacy that we humans find in our own vocal intonations: Our moods are portrayed in the way we say words, as well as in the words we choose. Both angry

and older voices are deeper than happy or younger voices. "Don't come whining to me" is a familiar response to a tone of voice; and it is universal that you talk in a high falsetto to a small baby. That the voices of men and women differ in vocal tone, but that those of children do not, is underlined by the

"In many bird species . . . the female even reverts to 'baby' behavior with her favored suitor."

species disappeared. They had become too large, and could not get enough to eat. It seems logical to assume that those prehistoric animals that used the vocal code did not need to grow so large. These were the ones that survived and became the ancestors of today's animals, including human beings.

So if you decide to "talk" with an animal, you need not use words. Use tones of voice. If you want the animal to know you are angry, give a low, harsh sound—and the angrier you are, the longer you should draw the sound out.

A high-pitched, tonal sound would say you are friendly; a very high-pitched one, that you are frightened. Screeches, high-pitched sounds with some harshness, say that you are very frightened, but will fight in desperation. You hear these sounds from weaker animals in fights, and from many small animals when caught by a predator.

If you give a short sound that goes up and down very fast, you are saying you see something that interests you. In small birds this short sound comes out like "chip" or "chirp"; in larger mammals, it sounds like a bark or grunt. Humans might use words like "wow," "hmpf," or "aha!"

By using this short sound, an animal attracts the attention of others of its kind. Birds use this sound to slow down a flock's movement. This use of the interest-sound is in one sense deceptive,

since often the animal has not really seen something that interests it, but is using the interest-sound to get the attention of its fellows. The advantages of a flock's staying together are so important that flock members will respond to this interest-sound despite the deception.

But let's return to your attempt to talk to an animal in its own language. You will probably soon realize that communicating with animals in their own way is at best limited; and you will again resort to words, asking questions and giving commands. Sometimes smart animals like dogs, and of course our close relatives the chimpanzees and great apes, can be taught what a few of our spoken words mean. Fascinating experiments are also being made in teaching the great apes the American Sign Language, which is widely used by human beings who cannot vocalize or who have trouble in vocalizing, such as the deaf.

But those animals that *do* learn the meaning of a few spoken words do not pass this knowledge on to their young. Most of what to us appears to be word understanding in animals may to them be based on understanding the intonations we give to the words.

The "mood" language of animals is sufficient for them—and it is almost always honest. An animal that "says" it is angry by growling

ancient role differences between adults and children and between adult men and women.

What about the evolution of animal "mood" language? Since the "mood" language system is directly tied to body size, we might surmise that it first evolved in animals that reproduce before they attain their largest size, or may even continue to grow throughout life. Frogs and toads, for example, get larger the longer they live.

We can only speculate, of course; but it seems logical to assume that species whose members did not communicate vocally with one another acquired their resources almost entirely by fighting for them. These species grew larger and larger, since the larger the animal the more certain it was to win fights and to reproduce. This would eventually produce the dinosaurs: huge carnivorous or herbivorous reptiles, the gigantic survivors of countless fights for lives and mates.

When the environment changed or new competitors appeared, these

makes its behavior perfectly predictable to another animal. That animal cannot lie, for its vocal sounds are directly tied to its mood.

"By now you should have decided that trying to 'talk' to an animal in its own language is an impossible assignment."

Whether or not a sound is vocalized is important. Some animals "lie" by making hisses (a sound *not* made with the vocal cords) that may mimic a dangerous snake. A mother titmouse does this when disturbed inside her cavity nest; she is trying to frighten off the intruder by "lying" that she is a black snake. A goose's hisses, on the other hand, are *not* mimicry; but they accomplish the same end. A goose hisses at any non-goose animal that threatens her nest—her "lie" says that she is threatening, rather than afraid.

A hiss is understood by all animals to be a threat, but only the growl is both a threat and an actual attack sound. An animal can in reality be frightened, rather than angry, when it hisses (it just wants to be left alone); but it is always angry when it growls—a sound made

with the vocal cords. As a general rule, once an animal makes a vocal sound, its inner feelings are known to all that hear it.

By now you should have decided that trying to "talk" to an animal in its own language is an impossible assignment; humans stand alone in their ability to talk. Talking involves more than just the production of word sounds; it also involves hearing the sound in a very special way. If you wanted to cuddle up to an animal for a conversation, you

might say, "Oh, what a goose I am" just to get into the spirit. But the poor goose would probably listen to how you inflect this continuous sound and hear: "Owaa tagoo siam"! In "mood" language, this would be terribly confusing.

So if someone brags that he or she can talk to animals, remember what Mark Twain said: "Animals talk to each other; I never knew but one man who could understand them—I knew he could because he told me so himself."



Dr. Eugene Morton is currently studying how geese communicate; "they have an amazing range of possible sounds," he says. He has quickly realized that communicating with animals in their own way has its drawbacks.

The Zoo in Winter

J. Fisher

Come snow or blow, we try to keep them aglow.

That could be the motto of the National Zoo's dedicated keepers, who do their best each winter to keep the cold, wet weather from making their charges miserable.

Plenty of food, dry beds, and shelter are crucial. Without them even cold-weather buffs like the Arctic foxes, pandas, and polar bears can get the shakes.

Winter at the Zoo means a lot more than simply providing shelters and dry beds. Like harried homeowners, Zoo people bundle up for the winter each year by installing insulation, checking thermostats, and keeping a sharp eye on the chill factor.

Preparations begin in the autumn, long before the first snowflake falls. The diet of some animals, like the hoofed stock, is supplemented with extra doses of high-energy foods, like corn, barley, and oats. The new layers of fat produced by the high-protein feed gives the animals more protection against cold.

Said one keeper, "When the thermostat plunges, the animals out there burn calories like mad; so it



The tiger, a highly adaptable predator, is at home in a variety of climates, from snow-laden pine forests to steamy rainforests—to Lion-Tiger Hill at the National Zoo.

not a question of spoiling them with these goodies. It's a necessity."

As an added line of defense, wooden planks or plastic sheeting is put up to protect many of the enclosures and cages from chilling gusts.

Infrared lamps and heat panels warm the air in many places. These

are closely checked by maintenance people well in advance of the first bone-chilling days.

"We've been switching from heat lamps to infrared panels in the last

four or five years," points out William A. Xanten, Jr., the National Zoo's curator of mammals.

"The panels are controlled thermostatically, shed heat over a much wider area, and are really money-savers in the long run. Budgetary restraints have forced us to curtail the program, however."

Other electronic devices give birds the hotfoot, but it's for their own good. Electronically heated perches keep claws free from frostbite.

But some protective measures don't work out, despite the best of intentions. When special rubberized insulating flaps were installed to give the black rhinos easy access to the outdoors, the ungrateful animals ate the flaps! Conventional doors now keep them inside unless outdoor temperatures reach the 40s.

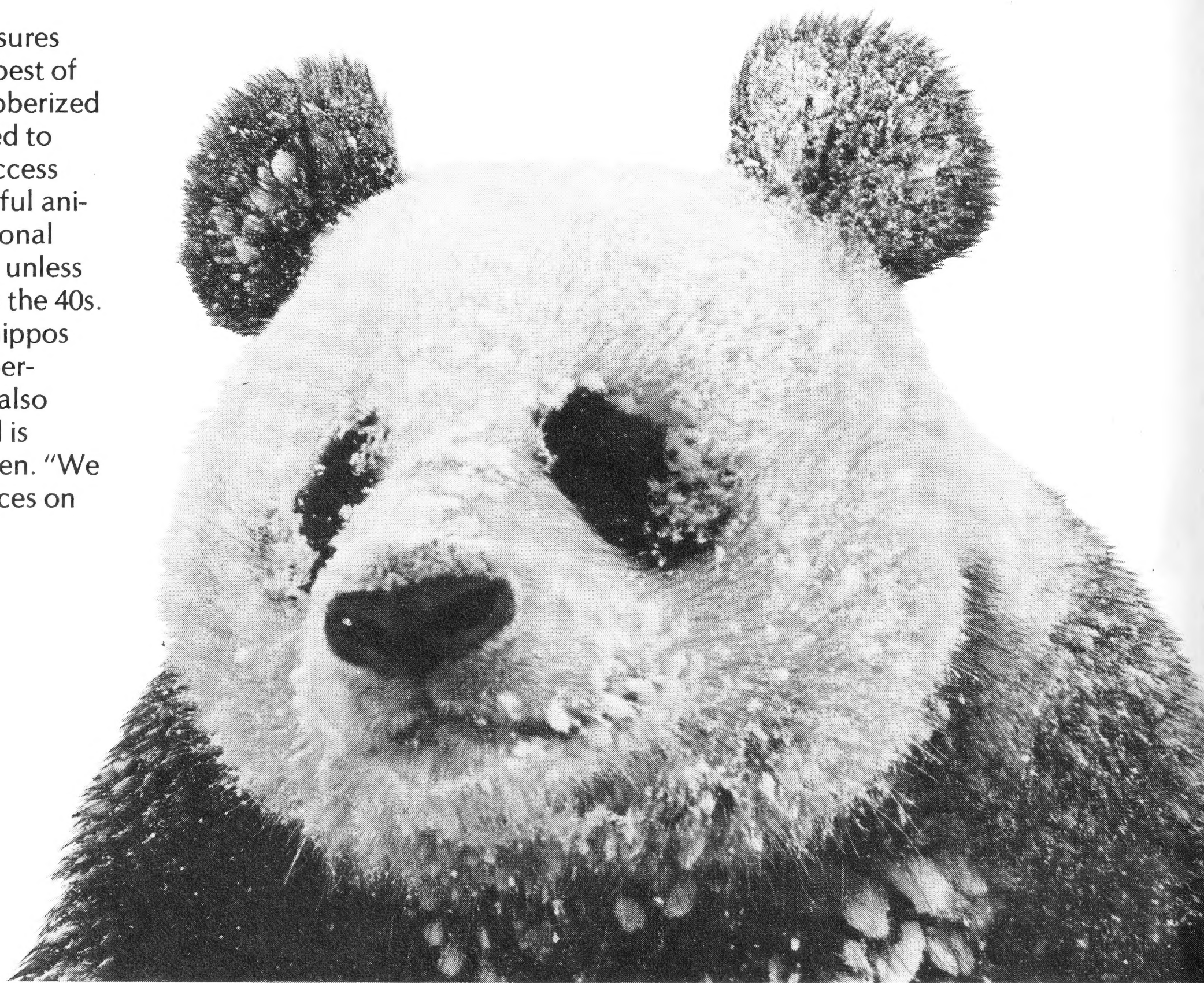
Giraffes, elephants, and hippos stay inside, too, unless temperatures are moderate. "They also remain indoors if the ground is covered with ice," says Xanten. "We just don't want to take chances on broken bones."

Some animals do well in slippery conditions. For instance, reindeer and caribou have wide hoofs and a short gait to help them over ice and snow. The soft part of the underhoof contracts, leaving the hard outer edge projecting. Cutting through ice and snow, this hard outer hoof gives non-skid traction.

The giant pandas love a good snowfall. Like dutiful parents, the Zoo's keepers traditionally build

"Naturally more active in wintertime, the pandas romp in snow."

snowmen for them to celebrate the first big storm. And like mischievous children, the pandas respond by knocking the snowmen down.



Naturally more active in winter-time, the pandas romp in snow. "I can't remember a day when it's been too cold for them to go out," said a veteran panda-watcher.

Many of the monkeys, too, frolic outside in all but the coldest weather. Rubber flaps in the Monkey House give them easy access to outdoor play areas while conserving heat inside.

Monkeys, lions, and many other African animals often regarded as tropical by the public actually do quite well in cold weather. As Xanten notes, the temperatures in their native habitats sometimes fall to the 30s at night. Given the necessary time to adjust, they adapt quite well to prolonged cold weather in U.S. zoos.

The animals that have probably fared worst during the last two severe winters have been the hoofed stock. There have been cases of frostbite and frozen hooves, but quick reaction from attendants has kept permanent injury to a minimum. Only one animal suffered excessively: A tiny male dik-dik lost his horns in the cold snap the winter before last—one of the worst in the Zoo's history.

Nobody at the Zoo looks forward to a prolonged bout with sub-freezing temperatures. Invariably, it means broken pipes, frozen water troughs, and all sorts of unexpected headaches.



Two years ago, the protracted cold weather inspired an invasion of predators. Denied normal food supplies in the surrounding area by the deep freeze, foxes, raccoons, possums, and weasels descended on the Zoo for free meals. Their ponds frozen over, the waterfowl had no place to retreat to, and made particularly easy pickings for their furry enemies. Ravenous raccoons even scaled outdoor birdcages protected by electronic wire to snare a meal.

The Zoo has since taken added precautions to protect animals vulnerable to the unwelcome outsiders—for example, aerators in the ponds now keep them from freezing.

A severe snow brings a separate set of miseries. It is particularly hard on keepers, who must struggle in no matter what problems

Waterfalls, aerators, and water pipes keep bird ponds at the National Zoo from freezing over during severe cold spells.

the storm may cause. "Who else will feed and care for the animals?" asked one keeper succinctly.

Even snowy road conditions can seem trivial once a keeper gets to work. A severe blizzard can leave animals bogged down in heavy drifts. Gates to pens can be blocked by snow.

"When that happens, it's grab the snow shovels and climb the fences," says Xanten.

What Does a Registrar Do?

Judith Block
Registrar

Query: "What do you do?"

Response: "I'm the National Zoo's Registrar."

Incredulous rejoinder: "You mean you register the animals?"

Yes, of course; for if you do not register them, it is as if you don't have them.

Let me explain this. I think everyone who works in a zoo has a primary personal rationale for keeping animals in captivity. For me, it is that although keeping one or two specimens of a species at a time does not count for much, if we can learn as much as possible about these

specimens and others like them, then over a period of time perhaps we can begin to learn something about the species as a whole.

This is where a registrar's job begins. When an animal comes to the Zoo, the registrar is responsible for identifying it and for keeping track of everything that is found out about it. With this information, curators can chart genealogies to help formulate their breeding programs. They can also work out management plans based on health and reproduction data and begin research studies suggested by mere fragments of observation. Veterinarians can keep track of individual progress and recurring problems and spot trends in groups. And information on well-known specimens can be provided to the public.

How do you register an animal? The process begins with its acquisition. If it is born or hatched in the Zoo, the procedure is relatively simple. A birth or hatching is noted

as breeding data on the parents' records, and the new arrival is assigned an accession number—a number unique to each specimen, much like a social security number. So that everyone knows how to match that number with the correct individual, the registrar may arrange to have the animal marked with some sort of identifier—a leg band, ear tag, tattoo, notch, etc.

Animals acquired by trade, purchase, loan, or acceptance of a donation are also given accession numbers and individual markers; but

"Documentation also includes securing as much information as possible about the specimen's past."

much more goes into their dossiers. In these cases, the curator makes the arrangements for the particular acquisition, and the registrar takes care of the attendant documentation. This includes such business aspects as price or what is being traded for the animal; who is responsible for the shipping; and whether

Shipping animals overseas requires so many documents that they may outweigh the animal.





there is a guarantee that the animal will arrive alive and survive for at least 30 days.

Documentation also includes securing as much information as possible about the specimen's past. For example, knowing if the animal is captive-born or wild-born, what its age is, what its experience is in socialization, and what its medical history is, may all prove significant.

The key issue, though, is documentation of legal origin; and the registrar is responsible for compliance with all state and federal regulations on protected species, disease restrictions, and shipping methods. Documentation also includes proof of legal acquisition by the supplier and of compliance with health regulations. Sometimes complex transfer or import permits must be obtained.

An increasingly popular form of transaction, at least for the curators, is the breeding loan. In this

Breeding Loan Agreements are popular with curators but difficult to document. Of the six clouded leopards at the Zoo's Conservation and Research Center at Front Royal, all of the animals are owned by other zoos.

transaction, the registrar helps negotiate formal Breeding Loan Agreements — and then tries to keep up as the subjects of the contracts multiply and the arrangements thus become more complex. For example, most agreements stipulate

that ownership of offspring is apportioned by sex—and sex is often not determinable for several months after the offspring are born.

The National Zoo currently has some 400 animals involved in loans, both to and from. With some loans, as in the case of the six clouded leopards which are at the Zoo's Conservation and Research Center, *all* of the animals are owned by outside zoos.

A computer system is being designed to help keep loan records straight. Meanwhile, record computerization is already under way. The initial record for each bird and mammal (and soon for each reptile and amphibian as well) is entered in coded—and necessarily condensed—form to the International Species Inventory System (ISIS), which provides printouts of both in-house and international inventories of specimens. This latter inventory enables us to estimate the total captive population of a species and to locate other institutions that hold specimens we might be interested in breeding. The press has nicknamed ISIS the computer dating service for zoo animals. This may be catchy, but it gives quite the wrong impression about a very sophisticated process.

Zoo specimen cards—one for each of the some 2,500 individuals in the Park—supplement the data in the

computer and are used to record information about breeding, health, feed, pairings, moves, etc., gathered by keepers and noted on their Daily Reports. Once a year or more, the record cards are matched with the specimens by a "head count," and all transactions are summarized in a balance sheet by species. (The first year they were here, the giant pandas were left off the Inventory. The Director spotted the omission, and instead of remonstrating was kind enough to reminisce about the time someone forgot to count the elephants.)

The procedure for removals is similar to that for acquisitions. There are the same business, legislative, and historical aspects to be covered. The exception is in the case of death. When an animal dies, the carcass is offered to the Smithsonian for its study collections; if the Smithsonian does not want it, it may go to the NZP's Zoolab or Birdlab, or it may be incinerated.

For such removals as sales, trades, gifts, and loans to other institutions, the National Zoo usually makes its own shipping arrangements—and therein lies an exasperating task.

You'd think arranging a shipment would be simple: All you'd have to do is call the airlines for a reservation, get the vet to sign a standard health certificate, and off the animal would go.

It's a bit more complex than that. First you have to find out the dimensions and weight of the proper crate for the animal. Then

you must go to the airlines' schedule book to pick the most direct routing and see if the crate will fit in the cargo hold of that type of plane. You must also consider the weather at all stopovers: Will it be too hot for the animal? too cold?

After all this, you begin calling the airlines—to explain just what a consignment of wombats, genets, dik-diks, caracaras, iguanas, or whatever, means; to discuss the special care which might be required on the way; to stress the importance

"You'd think arranging a shipment would be simple. . . . It's a bit more complex than that."

of a quick, easy journey, with no long stretches of sitting on the tarmac for the crated animal; to explain how animals calm down when their crate is in motion; and to learn the idiosyncracies of each airline's rules and how to work with or around them.

One airline may not accept monkeys because they are prone to escape; so you explain how adept the Zoo is in crate-building. An air-

line's prohibition against hippos of more than six months of age may be lifted for a yearling pygmy hippo, since pygmy hippos weigh much less than their more well-known kin. You promise that odoriferous specimens will be bathed before takeoff; you explain that the ten chicks you're shipping aren't going to be packed one on top of the other. After all this, you may get the special permission you need—or you may have to contact an animal trucker.

Either way, the next step is to contact the curator, so that he or she can schedule taking the shipment to the airport—and you had better have a very good explanation if it turns out that they have to get to Kennedy Airport in New York at four o'clock in the morning!

Now you must assemble the myriad documents. In the case of overseas shipments, where you want enough copies for all possible agents to have sets of their own and still have one set left over to arrive at the final destination, this may mean a packet of documents that weighs as much as the animal does.

Next, you forewarn everyone along the way that the animal will be in transit. "Everyone" includes those zoos which may have to be called in to help at various stop-overs, brokers, and government officials. Then the shipment goes; and you hold your breath, either for the



This Kodiak bear cub is on its way to Guatemala. Although it has not attained its full weight (which could be as much as 1,500 pounds), it took five men to get cage and bear onto the waiting fork lift.

cable from the other end that says "all arrived safely," or for that dreaded midnight phone call that the animal did not arrive as scheduled. If *that* nightmare occurs, you frantically go to work to track the shipment down—knowing that when it changed planes, it could have gone

almost anywhere in the country. Anyone who has lost a suitcase while flying knows a little about this!—but imagine, if you will, a suitcase that



"... imagine, if you will, a suitcase that is alive, hungry, and perhaps sitting in entirely the wrong environment."

is alive, hungry, and perhaps sitting in entirely the wrong environment.

There are other, no less important, aspects to the job of registering the animals. Annual reports must be submitted to the international stud books. Surveys requesting data on certain species under study at other institutions must be dealt with. Queries must be answered—for example, the letter inquiring about whatever happened to the rhesus monkey "Stratosphere Mike," who was at the Zoo after a historic voyage into space or the letter from the reporter who wanted to know the latest giant panda weights.

Query: "What does a zoo registrar do?"

Response: "A job of endlessly interesting variety."

Scenting water, this seal, the first arrival at Beaver Valley's new exhibit, scampers out of the crate in which it was shipped to the Zoo.

The Fourth Grade Pilot Program

Judy Herman
NJP Office of Education

This year not one trip to the Zoo but six are planned for 16 fourth-grade classes from the District of Columbia School System. These classes are participating in a new program, "Zoo Animals: A Closer Look," which was jointly initiated in 1977 by the National Zoo's Office of Education and FONZ's Office of Volunteer and Educational Services. The program is exciting: participating students, teachers, and guides enjoy the opportunity to look and learn, in depth, together.

The children are first introduced to the program in their school classroom. They watch the FONZ film "Zoo," which captures their interest immediately. After a lively discussion about animals and the way the Zoo cares for them, the class

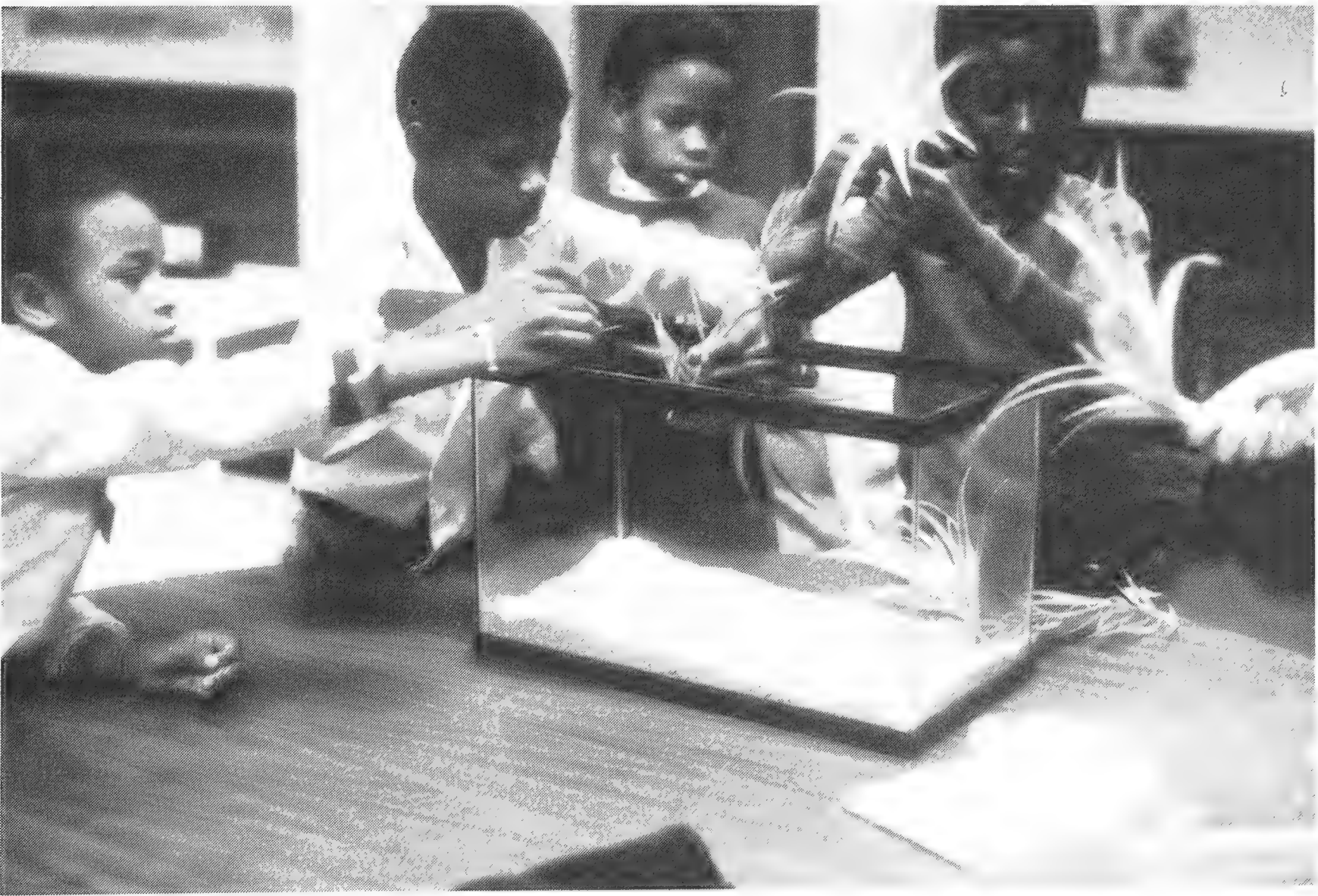
finds out that even more is in store for them over the next five weeks. Eyes light up when students are told that the Zoo Express (a bus decorated with animal silhouettes taken from the Zoo's striking new graphics system) will take them to the Zoo.

Each week the class will concentrate on a different group of animals—reptiles, amphibians, birds, mammals, and primates. Like scientists, class members will observe carefully, describing, recording, and asking questions about what they see. Sometimes they will get very close to the animals—even touch them. The class is excited! The children already have lots of questions to ask their teacher and

the guides. Everyone is looking forward to next week's trip.

The children's initial enthusiasm continues throughout the next five weeks. The lessons are activity-oriented and challenge the children to become involved. During the first lesson in the Zoo workroom, each child is encouraged to touch a lizard, a turtle, a snake, and a frog to compare reptiles' scaly, dry skin to amphibians' smooth, moist skin. Few children forget the difference.

During the lesson about birds, children compare the weight of a bird bone and a mammal bone. They also look at bird skeletons and compare feathers by dropping them. This close examination of a bird's



Children learn by doing in this lesson about habitats by constructing a desert terrarium for a leopard gecko.



"Participating students, teachers, and guides enjoy the opportunity to look and learn, in depth, together."

ticipate. By the last class they are volunteering information. Some ask more questions than they did at first. Most are looking more closely—noticing more about one animal before they move on to look at another.

While the major goal of the program is to get the children to look carefully at animals, it is the involvement of the teachers and guides that insures the program's success. When the children arrive at the Zoo, they are divided into small groups of six to eight children that always work with the same guide or classroom teacher.

During each visit the groups spend some time in the Zoo workroom, which is located in the Education Building, and some time out in the Park. It's not always easy to orchestrate these lessons, but the guides and teachers work together and enjoy the challenge. They ask questions to draw the children out, focus their observations, and encourage them to compare. Sometimes when the children are using work-

structure gives the children new insights when they go out into the bird area.

Looking at mammals during the fourth lesson, each child tours the Zoo with a clipboard and record book. After drawing a specific mammal, the child notes its size, the placement of its eyes, and what its legs and feet are like. Using these observations, the group discusses the similarities and differences among mammals. Such comparisons show how mammals are adapted to many different habitats.

While most lessons focus on

physical features, the final lesson is planned to give the children the opportunity to observe animal behavior—in this case, that of monkeys. Again, each child has an observation sheet; if you peer over someone's shoulder, you are likely to find that not only has she or he checked off some of the behaviors listed on the sheet, but some behaviors have been added that were not listed.

During this six-week period, guides and teachers notice how the children change. Most blossom during the course and are more willing to discuss their observations. During the final lesson, children who are initially reticent begin to par-

sheets, their leader (guide or teacher) will explain the activity; the children then continue on their own. The guide or teacher checks in with each of them to see how he or she is doing, and finally pulls the group together for a discussion to sum up its findings.

For the guides, who are practiced in touring the Zoo with school groups, this program is an intense new experience. The guides like the opportunity to introduce the lesson with an activity in the workroom, and then to reinforce what the group has done there with an activity in the Park. They enjoy the continued contact with their students, who promise at the end of the session to come back to see them at the Zoo.

Teachers are also pleased with the program. All through the program's planning states, teachers were consulted to find out what they wanted for their children. The Zoo/FONZ team then considered these needs and how they might be filled at the Zoo. The program complements the fourth-grade science curriculum by reinforcing skills taught in the classroom—observation, classification, and the recording of data. Since students are so excited about the visits to the Zoo and are anxious to learn more about the animals, classroom teachers take advantage of their enthusiasm. Using materials provided by

the Zoo, teachers plan other lessons to complement the "Zoo Animals" program.

The Zoo is proud of the program, "Zoo Animals: A Closer Look." It provides a lasting experience that students, teachers, and guides can share—and after this rich experience, we hope the children will come back to the Zoo to look and learn again and again and again.

Editor's Note: In fall, 1978, "Zoo Animals: A Closer Look" won a Significant Achievement Award from the American Association of Zoological Parks and Aquariums.



Fourth-graders are encouraged to handle and compare reptiles and amphibians during their first lesson in the Zoo workroom.

FONZ NEWS

Birdlab

Unless you know where it is, Birdlab may be hard to find the first time. You might not notice an unobtrusive room by the kiwi when there's a cockatoo right in front of you, hanging from a tree-limb by its beak, or dozens of birds fly over your head in the indoor flight room.

Birdlab is worth the hunt. It's right outside the indoor flight room; and it is a classic example of a quiet exterior cloaking a treasure house.

Outside the door of Birdlab are information boards that keep you up to date on Bird House news and activities. The news is supplied by Keeper Mary Noël and updated weekly.

Yellow baby chicks stand in Birdlab's front window, under a spotlight (for warmth). They have a carpeted glass case with two feed dishes; there are brightly-colored marbles in the chicks' water dish—to keep it from tipping over.

Next to the chicks' case is an incubator/brooder which usually contains fertile chicken eggs in some stage of development. Birdlab's other window, a little further down, contains two model biplanes, a swan's egg, various stuffed birds, and a stuffed flying squirrel hanging by a wire from the ceiling as if in mid-flight.

Inside, Birdlab is long and narrow. Along one wall is a low counter with sturdy stools underneath. On the counter are: two stuffed birds (a toucan and a robin); a shadow-box and projector, for the showing of a two-minute silent movie about the Bird House; a bluebird's nest in a plexiglas imitation birdhouse, with a hinged lid for easy nest-touching; cases containing skeletons of a rat, a bat, a pigeon, and a swan; and a vase holding feathers from a number of different bird species.

Between the two sets of windows is another low counter. Behind it are resource boxes on various subjects, such as bird sounds, bird diets, feathers, etc.

Pat Petrella, the FONZ staff member in charge of recruiting, training, and scheduling the Birdlab volunteers, explains one resource box, marked Wing Span. "Hold the other end of this," she says, and unfurls a long, thin piece of hunter green acetate cloth. It's about 12 feet long. "This is the wing span of a wandering albatross. Do you *believe* the length of it?!"

"Wing Span is my favorite box," Pat confides, folding the green cloth up again. She shows some of the box's other contents, including a



The Nest Games box gives students a chance to examine nests of various species of birds. Not only is this a useful lesson on how birds build their nests to cope with different environments—it's fun!

card exhibiting the wing span of the red bishop, the bird that has the smallest wing span (4.75 inches, or 12.2 cm) at the National Zoo. The red bishop, you also learn, has about the same weight as three sticks of chewing gum.

Birdlab also contains telescopes and binoculars that can be borrowed for close-up birdwatching; activity cards; resource files; books on birds—in fact, an almost bewildering variety of resources for learning about birds.

“Birdlab is in an ideal situation,” Pat says, “because it’s right in the Bird House. People can come in, go out, come back, compare, explore; there’s a sense of immediacy.”

Marlene Robinson, the member of the NZP’s Office of Education staff responsible for putting together the resource boxes, agrees. “People can really immerse themselves in learning about birds. I can’t stress enough how important it is that people be able to, say, study nesting sites in the Nest Games box, and then go right out and look at a bird sitting on a nest. And then come back and learn about something else.”

Birdlab is open from 12:00 to 3:00 on Friday, Saturday, and Sunday, and at other times by appointment. When it first opened, in late 1978, the weekend crowds sometimes exceeded 300 people. Visitors occasionally had to be asked to wait



Both telescopes and binoculars are available for loan at Birdlab. They can be taken out of the building for looking at birds outside—or used on the spot!

or to come back later. “Now the crowds have eased off,” Marlene says. “It’s really the perfect time to come in and see everything at your leisure.”

Beaver Valley

FONZ members are invited to a very special private opening of Beaver Valley on Friday night, May 4, from 5:00 p.m. to 7:30 p.m. FONZ guides will be available to answer questions as members tour the National Zoo’s newest exhibit.

Gray seals, timber wolves, California sea lions, beavers, crabeating, foxes, and North American river otters will roam through exhibits set in a wild area of rushing streams, ponds, and tall shade trees—a wooded ravine that is amazingly close to their natural environments.

Beaver Valley will be featured in the next issue of *The ZooGoer*—a special, double issue that will also focus on bears. Watch for it!

Lend a Helping Hand

... and get paid for it!

FONZ sometimes needs dependable, enthusiastic help in its park concessions operations on weekdays during the beautiful spring and fall seasons. If you have several days free and would like to be a gift shop sales clerk, a parking or stroller rental cashier, or a food services worker, please call Mary

Massey, 232-7718, weekdays, for details.

How Wild Can You Get?

Membership in FONZ is a meaningful way to support wildlife conservation through the National Zoo's special programs. And FONZ membership privileges and programs in 1979 will be the most exciting we've ever had.

Make your friends our Friends

by giving them a FONZ membership—it's a gift that both educates and delights.

Or, if you're from out of town, consider a subscription-only membership. You will receive *The Zoo-Goer* six times a year and be able to keep in touch with the important work going on at the Zoo in education, research, and conservation of wildlife.

For more details, write to FONZ, c/o The National Zoo, Washington, D.C. 20008.

FONZ Safaris

GALAPAGOS ISLANDS **July-August, 1979**

A most unusual FONZ adventure!

The same wildlife wonders that amazed Darwin—and triggered the theory of evolution—remain untouched in the Galapagos, remote islands lying astride the equator. Swim among fur sea lions; observe endangered penguin colonies on rocky beaches; examine marine and land iguanas, booby birds, and giant Galapagos tortoises more than 100 years old.

A comfortable cruise ship will transport you from island to island, while professional naturalists offer lectures on board and then guide you on hikes through these enchanted islands. An optional trip to the lost city of the Incas, Machu Picchu, and Lima, Peru, will be available after the island tour.

The approximate cost of \$1,600 includes all expenses except for a few optional meals in Quito and Guayquil.

PEOPLE'S REPUBLIC OF CHINA **September, 1979**

Golden-haired monkeys, the Great Wall of China, the Ming Tombs, the Forbidden City, and of course, giant pandas are just a few of the things members will see on this special FONZ tour of China.

The tour begins in the capital city, Peking. Here participants will visit such attractions as the Summer Palace and Chairman Mao's memorial.

Other cities to be visited are Yangchuan, featuring the rarely-seen commune of Tachai; Sian, once the largest city in the world and still an example of imperial splendor; Shanghai, now the largest city in China; and the port city of Kwangchow (formerly Canton).

The tour of China will end at Kwangchow. The group will then cross China's border and spend a few days in Hong Kong. Optional side trips to other countries in Asia and Europe are available at that time.

The all-inclusive price of \$3,100 covers transportation and all costs throughout China.

For more details on either of these exciting safaris, contact the Office of the Executive Director of FONZ at 232-7700.

Calendar of Events

MARCH

- 5 (Monday)
Photo Exhibit Opens.
- 19 (Monday)
Audubon Lecture
"Pawpaws, Pitcher Plants and Peregrines." Stanwyn Shetler, Associate Curator of Botany, Smithsonian Institution.
- 24 (Saturday)
Free Tour of the Zoo
Open to FONZ members only. Please call 232-7700 for reservations.
- 31 (Saturday)
Spring Classes Begin.

APRIL

- 14 (Saturday)
Front Royal Volunteer Weekend
An opportunity for FONZ members to donate their efforts to the conservation program at Front Royal. Volunteers will assist in activities contributing to the well-being of the animals; weekend accommodations will be provided. Please call 232-7700 for information and reservations.
- 16 (Monday)
Audubon Lecture
"Life on Earth — The Primates." John Sparks, BBC producer.

- 21 (Saturday)
Trip to the Baltimore Zoo
A special tour of the Baltimore Zoo will include behind-the-scenes tours of Penguin Island and the new African Flight Exhibit.
- 28 (Saturday)
Spelunking Spree
A visit to a cave in Virginia will offer participants a chance to explore rock formations and examine cave wildlife and insect life.

MAY

- 4 (Friday)
Exhibit Opening
A special preview, for FONZ members only, of the National Zoo's new exhibit, Beaver Valley.
- 12 (Saturday)
Catoctin Mountain Park Hike
Wild scenery and splendid panoramas of the surrounding countryside — an adventure that will take place rain or shine!
- 12 (Saturday)
Family Day: The Big Cats
Tour the new Lion-Tiger Exhibit, learn about the big cats, and even make a soft-sculpture cat to take home. This is an opportunity for parents and children to learn — and have fun! — together.

For more details on any of the above events, call the FONZ membership office at 232-7700.



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